UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,596	03/29/2004	Xiaodong Cui	TI-37147	2740

23494 7590 09/25/2007

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER	
RIDER, JUSTIN W	
ART UNIT	**PAPER NUMBER**
2626	

NOTIFICATION DATE	DELIVERY MODE
09/25/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com
uspto@dlemail.itg.ti.com

Office Action Summary	Application No.	Applicant(s)	
	10/811,596	CUI ET AL.	
	Examiner	Art Unit	
	Justin W. Rider	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to communications: Application filed 29 March 2007. Claims 1-9 are pending.

Claim Objections

2. Claims 1 and 3-8 are objected to because of the following informalities:

Regarding claim 1, line 5, the term 'the scaling matrix' lacks antecedent basis and should therefore be corrected to further clarify the scope of invention.

In claims 3-8, Language such as 'could be' should be omitted from claim language. Such language fails to positively recite the functionality of the claim language and is therefore indefinite. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by **Eberman et al. (US Patent No. 5,924,065)** referred to as **Eberman** hereinafter.

Claim 1: **Eberman** discloses a method for updating covariance of a speech signal in a sequential manner (col. 5, lines 44-46), comprising:

i. scaling the covariance of the signals by a scaling factor (col. 6, lines 15-19);

ii. updating the scaling factor based on the signal to be recognized (col. 6, lines 56-59);

iii. updating the scaling matrix each time new data of the signal is available (col. 6, lines 60-64); and

iv. calculating a new scaling factor by adding a correction item to a previous scaling factor (col. 6, lines 64-67).

Claim 2: **Eberman** discloses a method for updating covariance of a speech signal as per claim 1 above, wherein the signal comprises a speech signal (Abstract).

Claim 3: **Eberman** discloses a method for updating covariance of a speech signal as per claim 1 above, wherein the scaling factor is a scaling matrix and could be any matrix that ensures the scaled matrix is a valid covariance (col. 6, lines 15-19 and 56-64; col. 8, lines 10-25).

Claim 4: **Eberman** discloses a method for updating covariance of a speech signal as per claim 1 above, wherein the new available data of the signals could be based on any length (col. 5, lines 18-21, *'The DSP **200** selects **(210)** time-aligned portions of the dirty signals.')*.

Claim 5: **Eberman** discloses a method for updating covariance of a speech signal as per claim 1 above, wherein the new available data of the signals could be a frame (col. 5, lines 22-23).

Claim 6: **Eberman** discloses a method for updating covariance of a speech signal as per claim 1 above, wherein the new available data of the signals could be an utterance (col. 9, lines 16-18, *'is chosen as the uttered speech.'*).

Claim 7: **Eberman** discloses a method for updating covariance of a speech signal as per claim 1 above, wherein the new available data of the signals could be a fixed time period (col. 5,

lines 22-23, a frame could inherently be considered to encompass a fixed period of time in a frequency-domain representation.).

Claim 9: **Eberman** discloses a method for updating covariance of a speech signal as per claim 1 above, wherein the correction is the product of any sequence whose limit is zero, whose summation is infinity and whose square summation is not infinity and a summation of quantities weighted by a probability (col. 6, lines 31-34, *'In the EM process described below, an expectation step and a maximization step are iteratively performed to converge towards an optimal result during a gradient ascent;'* col. 6, lines 47-49, *'because a robust speech processing system only needs to estimate some overall parametric statistic which can be estimated from the distribution using the EM [Expectation Maximization]process.'* [emphasis supplied].

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Eberman** in view of **Stylianou (US Patent No. 6,266,638)** referred to as **Stylianou** hereinafter.

Claim 8: **Eberman** discloses a method as per claim 1 above, however failing to but **Stylianou** does, specifically disclose wherein a 10 minute segment of input speech is obtained in order to provide speech parameters (col. 3, lines 27-29, *'We have typically used between 3 and four segments (about 10 minutes of speech) for getting a good estimate of the parameters.'*).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to include the teachings of **Stylianou** in the method of **Eberman** because it provides a more comprehensive representation of input speech in order to make more accurate estimations with respect to key speech parameters (col. 2, SUMMARY).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin W. Rider whose telephone number is (571) 270-1068. The examiner can normally be reached on Monday - Friday 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

J.W.R.
11 September 2007

DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER